

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF HEALTH

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OFFICE OF RADIOLOGICAL HEALTH  
109 Governor Street, 7<sup>th</sup> Floor, Richmond, Virginia 23219  
Office (804) 864-8150  
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**ENVIRONMENTAL  
RADIATION  
MONITORING  
PROGRAM**

**2018  
1<sup>st</sup> QUARTER REPORT**



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF HEALTH

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# Sampling Locations

# Sampling Locations for Surry Nuclear Power Station



Photo Courtesy of Dominion Power

LOCATION	TYPE	FREQUENCY	PAGE
<b><u>AIR / CHARCOAL FILTER</u></b>			
SPS-A-1 Surry Power Station	Air Particulate	Weekly	9
	Release Gas	Weekly	14
SPS-A-2 Jamestown State Park - Historical Site	Air Particulate	Weekly	10
	Release Gas	Weekly	15
<b><u>SURFACE WATER</u></b>			
SPS-W-1 Surry Discharge Canal	Surface Water	Weekly	19
SPS-W-2 James River – Robious Landing	Surface Water	Weekly	20
SPS-W-3 James River – Scotland Wharf	Surface Water	Weekly	21
<b><u>FISH</u></b>			
SPS-F-1 James River – .5 miles off Discharge Canal	Edible Fish	2x per year	27
SPS-R-1 James River – Various Locations	Shellfish	Annually	28
<b><u>SILT</u></b>			
SPS-S-1 James River - 1/2 Mile Off Discharge Canal	Silt	2x per year	29
<b><u>MILK</u></b>			
SPS-M-1 Surry County - W.B. Epps Dairy	Raw	Quarterly	32
<b><u>DOSIMETER</u></b>			
D-42 Surry County - Lawnes Creek	Gamma in Air	Quarterly	
D-43 Surry County - Route 628	Gamma in Air	Quarterly	
D-44 Jamestown State Park - Historical Site	Gamma in Air	Quarterly	
D-45 Newport News - Lee Hall	Gamma in Air	Quarterly	
D-73 Naval Weapons Station - Enlisted Quarters	Gamma in Air	Quarterly	
D-76 Newport News - Fort Eustis	Gamma in Air	Quarterly	
D-77 Williamsburg - Busch Gardens	Gamma in Air	Quarterly	
D-78 Williamsburg - Williamsburg Airport	Gamma in Air	Quarterly	
D-79 Surry County - Scotland Wharf	Gamma in Air	Quarterly	
D-80 Surry County - Bacon's Castle	Gamma in Air	Quarterly	
D-81 Surry County – Alliance	Gamma in Air	Quarterly	
D-82 Surry County - Hog Point	Gamma in Air	Quarterly	
<b><u>VEGETATION</u></b>			
SPS-V-1 Surry County – Local Farmers	Edible Vegetation	2x per year	34

# Sampling Locations for North Anna Nuclear Power Station



Photo Courtesy of Dominion Power

LOCATION PAGE	TYPE	FREQUENCY	
<b><u>AIR / CHARCOAL FILTER</u></b>			
NAPS-A-1 Louisa County - North Anna Power Station	Air Particulate	Weekly	12
	Gas Release	Weekly	17
NAPS-A-2 Louisa County – Bumpass Volunteer Fire	Air Particulate	Weekly	13
	Gas Release	Weekly	18
<b><u>SURFACE WATER</u></b>			
NAPS-W-1 North Anna Power Discharge Canal	Surface Water	Weekly	22
NAPS-W-2 North Anna River @ Rt. 651	Surface Water	Weekly	23
NAPS-W-3 North Anna River @ Rt. 522	Surface Water	Weekly	24
<b><u>FISH</u></b>			
NAPS-F-1 North Anna Lake - Second Cooling Lagoon	Edible Fish	2x per year	27
<b><u>SILT</u></b>			
NAPS-S-1 Waste Treatment shoreline soil	Soil	2x per year	29
<b><u>MILK</u></b>			
NAPS-M-1 Louisa County - Lakeside Dairy	Raw	Quarterly	32
<b><u>DOSIMETER</u></b>			
D-35 NAPS	Gamma in Air	Quarterly	33
D-50 Louisa County – Mineral	Gamma in Air	Quarterly	
D-51 Louisa County - Wares Crossroads	Gamma in Air	Quarterly	
D-52 Spotsylvania - Good Hope Church	Gamma in Air	Quarterly	
D-53 Spotsylvania - Route 614	Gamma in Air	Quarterly	
D-54 Louisa County - Frederick's Hall	Gamma in Air	Quarterly	
D-84 Louisa County - Route 685	Gamma in Air	Quarterly	
D-85 Spotsylvania Co. - Route 713	Gamma in Air	Quarterly	
D-86 Louisa County – Bumpass Volunteer Fire	Gamma in Air	Quarterly	
D-87 Spotsylvania Co. - Levy	Gamma in Air	Quarterly	
D-88 Louisa Co. - Rt. 700 (near station)	Gamma in Air	Quarterly	
D-89 Louisa County - Aspen Hill	Gamma in Air	Quarterly	
<b><u>VEGETATION</u></b>			
NAPS-V-1 Louisa County – Local Farmers	Edible Vegetation	2x per year	34

## Sampling Locations - Babcock & Wilcox

SAMPLE	LOCATION	TYPE	FREQUENCY	PAGE
<b><u>AIR</u></b>				
B&W-A-1	Eastern Site Boundary - Ballfield	Air Particulate	Quarterly	36
<b><u>SURFACE WATER</u></b>				
B&W-W-1	Eastern Site Boundary - Ballfield	Surface Water	Annually	37
B&W-W-2	James River Riverside Park	Surface Water	Annually	37
<b><u>SOIL</u></b>				
B&W-S-1	Eastern Site Boundary - Ballfield	Soil	Annually	36
B&W-S-2	James River Riverside Park	Soil	Annually	36
<b><u>VEGETATION</u></b>				
B&W-V-1	Eastern Site Boundary - Ballfield	Grass	Annually	37
B&W-V-2	James River Riverside Park	Grass	Annually	37

## Other Sampling Locations in Virginia

SAMPLE	LOCATION	TYPE	FREQUENCY	PAGE
<u>Air Filter &amp; Charcoal</u>				
Control/naturally occurring background				
D-40	Pocahontas State Park	Air Particulate	Weekly	11
		Gas Release		16
<u>Dosimeters</u>				
Control/naturally occurring background				
PSP-D-1	Pocahontas State Park	Air Gamma	Quarterly	33
<u>Silt</u>				
NNSB-S-1	James River - NNSB - Pier 1	Silt	Quarterly	30
NNSB-S-2	James River - NNSB- Shipway 11	Silt	Quarterly	30
NNSY-S-1	Elizabeth River - NNSY - Drydock #4	Silt	Quarterly	31
NNSY-S-2	Elizabeth River - NNSY - Drydock #8	Silt	Quarterly	31
NNSY-S-3	Elizabeth River - NNSY - Wet Slip #1	Silt	Quarterly	31
<u>Surface Water</u>				
NNSB-W-1	James River - NNSB- Pier 1	Surface Water	Quarterly	25
NNSB-W-2	James River - NNSB- Shipway 11	Surface Water	Quarterly	25
NNSY-W-1	Elizabeth River - NNSY - Drydock #4	Surface Water	Quarterly	26
NNSY-W-2	Elizabeth River - NNSY - Drydock #8	Surface Water	Quarterly	26
NNSY-W-3	Elizabeth River - NNSY - Wet Slip #1	Surface Water	Quarterly	26

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### NO DETECTABLE RESULTS "NDR"

In order for a nuclide to be identified in the spectrum and entered into this report, constraints set by the HPGe analysis software need to be satisfied and the results of the confidence index calculation must be greater than the threshold (usually 0.3).

For the maximum confidence index, the following conditions need to be met.

- The nuclide energy peak needs to be within the energy tolerance of the library lines for that nuclide.
- A nuclide with multiple lines, must match the library peaks in the spectrum.
- The number of half-lives that has elapsed, between when the sample was taken and when it was counted, must be less than 10 half-lives or the confidence in the identification is small.

If the confidence index threshold and/or any of the three criteria are not met, then the nuclide is deemed no detectable results, (NDR).

### MINIMUM DETECTABLE ACTIVITY "MDA"

MDA as used in this report is defined as the lowest level of radioactivity that can be consistently and accurately detected in a given sample that is identified in the spectrum.

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# Analytical Results



# Virginia Department of Health

## AIR PARTICULATE

January 1, 2018 through March 31, 2018

### Surry Nuclear Power Plant – SPS-A-1

Surry Power Station – on site

FIRST QUARTER REPORT 2018

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	SPS-A-1	01/01/18	- 01/08/18	
2 <sup>2</sup>	SPS-A-1	01/08/18	- 01/15/18	
3 <sup>3</sup>	SPS-A-1	01/15/18	- 01/22/18	0.03 +/- 0.003
4 <sup>4</sup>	SPS-A-1	01/22/18	- 01/29/18	0.02 +/- 0.003
5	SPS-A-1	01/29/18	- 02/05/18	0.01 +/- 0.002
6	SPS-A-1	02/05/18	- 02/12/18	0.02 +/- 0.004
7 <sup>5</sup>	SPS-A-1	02/12/18	- 02/20/18	0.02 +/- 0.003
8 <sup>6</sup>	SPS-A-1	02/20/18	- 02/27/18	0.02 +/- 0.004
9 <sup>7</sup>	SPS-A-1	02/27/18	- 03/06/18	0.04 +/- 0.007
10	SPS-A-1	03/06/18	- 03/12/18	0.02 +/- 0.004
11 <sup>8</sup>	SPS-A-1	03/12/18	- 03/19/18	
12 <sup>9</sup>	SPS-A-1	03/19/18	- 03/26/18	
13 <sup>10</sup>	SPS-A-1	03/26/18	- 04/02/18	

<sup>1</sup> Due to the MICL being serviced and the holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## AIR PARTICULATE

January 1, 2018 through March 31, 2018

### Jamestown – SPS-A-2

#### Jamestown State Park & Historic Site

FIRST QUARTER REPORT 2018

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	SPS-A-2	01/01/18	- 01/08/18	
2 <sup>2</sup>	SPS-A-2	01/08/18	- 01/15/18	
3 <sup>3</sup>	SPS-A-2	01/15/18	- 01/22/18	0.03 +/- 0.003
4 <sup>4</sup>	SPS-A-2	01/22/18	- 01/29/18	0.03 +/- 0.004
5	SPS-A-2	01/29/18	- 02/05/18	0.02 +/- 0.003
6	SPS-A-2	02/05/18	- 02/12/18	0.03 +/- 0.010
7 <sup>5</sup>	SPS-A-2	02/12/18	- 02/20/18	0.03 +/- 0.000
8 <sup>6</sup>	SPS-A-2	02/20/18	- 02/27/18	0.03 +/- 0.004
9 <sup>7</sup>	SPS-A-2	02/27/18	- 03/06/18	0.04 +/- 0.006
10	SPS-A-2	03/06/18	- 03/12/18	0.02 +/- 0.004
11 <sup>8</sup>	SPS-A-2	03/12/18	- 03/19/18	
12 <sup>9</sup>	SPS-A-2	03/19/18	- 03/26/18	
13 <sup>10</sup>	SPS-A-2	03/26/18	- 04/02/18	

<sup>1</sup> Due to the MICL being serviced and the holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## AIR PARTICULATE

January 1, 2018 through March 31, 2018

### Pocahontas – PSP-A-1

Pocahontas State Park – Control

FIRST QUARTER REPORT 2018

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	PSP-A-1	01/01/18	- 01/08/18	
2 <sup>2</sup>	PSP-A-1	01/08/18	- 01/15/18	
3 <sup>3</sup>	PSP-A-1	01/15/18	- 01/22/18	0.03 +/- 0.003
4 <sup>4</sup>	PSP-A-1	01/22/18	- 01/29/18	0.02 +/- 0.003
5	PSP-A-1	01/29/18	- 02/05/18	0.02 +/- 0.003
6	PSP-A-1	02/05/18	- 02/12/18	0.02 +/- 0.004
7 <sup>5</sup>	PSP-A-1	02/12/18	- 02/20/18	0.02 +/- 0.004
8 <sup>6</sup>	PSP-A-1	02/20/18	- 02/27/18	0.04 +/- 0.010
9 <sup>7</sup>	PSP-A-1	02/27/18	- 03/06/18	0.05 +/- 0.010
10	PSP-A-1	03/06/18	- 03/12/18	0.03 +/- 0.005
11 <sup>8</sup>	PSP-A-1	03/12/18	- 03/19/18	
12 <sup>9</sup>	PSP-A-1	03/19/18	- 03/26/18	
13 <sup>10</sup>	PSP-A-1	03/26/18	- 04/02/18	

<sup>1</sup> Due to the MICL being serviced and the holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## AIR PARTICULATE

January 1, 2018 through March 31, 2018

### North Anna Power Station at Route 700 – NAPS-A-1

Louisa County Route 700 / North Anna Power Station

FIRST QUARTER REPORT 2018

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	NAPS-A-1	01/01/18	- 01/08/18	
2 <sup>2</sup>	NAPS-A-1	01/08/18	- 01/15/18	
3 <sup>3</sup>	NAPS-A-1	01/15/18	- 01/22/18	0.03 +/- 0.003
4 <sup>4</sup>	NAPS-A-1	01/22/18	- 01/29/18	0.03 +/- 0.005
5	NAPS-A-1	01/29/18	- 02/05/18	0.03 +/- 0.004
6	NAPS-A-1	02/05/18	- 02/12/18	0.03 +/- 0.010
7 <sup>5</sup>	NAPS-A-1	02/12/18	- 02/20/18	0.04 +/- 0.010
8 <sup>6</sup>	NAPS-A-1	02/20/18	- 02/27/18	0.04 +/- 0.010
9 <sup>7</sup>	NAPS-A-1	02/27/18	- 03/06/18	0.05 +/- 0.010
10	NAPS-A-1	03/06/18	- 03/12/18	0.03 +/- 0.007
11 <sup>8</sup>	NAPS-A-1	03/12/18	- 03/19/18	
12 <sup>9</sup>	NAPS-A-1	03/19/18	- 03/26/18	
13 <sup>10</sup>	NAPS-A-1	03/26/18	- 04/02/18	

<sup>1</sup> Due to the MICL being serviced and the holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## AIR PARTICULATE

January 1, 2018 through March 31, 2018

### Bumpass Fire Station – NAPS-A-2

Louisa County / Bumpass Volunteer Fire Station

FIRST QUARTER REPORT 2018

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	NAPS-A-2	01/01/18	- 01/08/18	
2 <sup>2</sup>	NAPS-A-2	01/08/18	- 01/15/18	
3 <sup>3</sup>	NAPS-A-2	01/15/18	- 01/22/18	0.03 +/- 0.003
4 <sup>4</sup>	NAPS-A-2	01/22/18	- 01/29/18	0.02 +/- 0.003
5	NAPS-A-2	01/29/18	- 02/05/18	0.02 +/- 0.003
6	NAPS-A-2	02/05/18	- 02/12/18	0.02 +/- 0.004
7 <sup>5</sup>	NAPS-A-2	02/12/18	- 02/20/18	0.02 +/- 0.003
8 <sup>6</sup>	NAPS-A-2	02/20/18	- 02/27/18	0.03 +/- 0.010
9 <sup>7</sup>	NAPS-A-2	02/27/18	- 03/06/18	
10 <sup>8</sup>	NAPS-A-2	03/06/18	- 03/12/18	0.02 +/- 0.004
11 <sup>9</sup>	NAPS-A-2	03/12/18	- 03/19/18	
12 <sup>10</sup>	NAPS-A-2	03/19/18	- 03/26/18	
13 <sup>11</sup>	NAPS-A-2	03/26/18	- 04/02/18	

<sup>1</sup> Due to the MICL being serviced and the holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to air sampler being unplugged at the receptacle, no data was collected. The air sampler was plugged back in and reset.

<sup>8</sup> Due to training on 03/05, sample was collected 03/06.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

<sup>11</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2018 through March 31, 2018

### Surry Nuclear Power Plant – SPS-A-1

Surry Power Station – on site

FIRST QUARTER REPORT 2018

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	SPS-A-1	01/01/18	-	01/08/18			
2 <sup>2</sup>	SPS-A-1	01/08/18	-	01/15/18			
3 <sup>3</sup>	SPS-A-1	01/15/18	-	01/22/18			
4 <sup>4</sup>	SPS-A-1	01/22/18	-	01/29/18	NDR	NDR	NDR
5	SPS-A-1	01/29/18	-	02/05/18	NDR	NDR	NDR
6	SPS-A-1	02/05/18	-	02/12/18	NDR	NDR	NDR
7 <sup>5</sup>	SPS-A-1	02/12/18	-	02/20/18	NDR	NDR	NDR
8 <sup>6</sup>	SPS-A-1	02/20/18	-	02/27/18	NDR	NDR	NDR
9 <sup>7</sup>	SPS-A-1	02/27/18	-	03/06/18	NDR	NDR	NDR
10	SPS-A-1	03/06/18	-	03/12/18	NDR	NDR	NDR
11 <sup>8</sup>	SPS-A-1	03/12/18	-	03/19/18			
12 <sup>9</sup>	SPS-A-1	03/19/18	-	03/26/18			
13 <sup>10</sup>	SPS-A-1	03/26/18	-	04/02/18			

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2018 through March 31, 2018

### Jamestown – SPS-A-2

Jamestown State Park & Historic Site

FIRST QUARTER REPORT 2018

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	SPS-A-2	01/01/18	-	01/08/18			
2 <sup>2</sup>	SPS-A-2	01/08/18	-	01/15/18			
3 <sup>3</sup>	SPS-A-2	01/15/18	-	01/22/18			
4 <sup>4</sup>	SPS-A-2	01/22/18	-	01/29/18	NDR	NDR	NDR
5	SPS-A-2	01/29/18	-	02/05/18	NDR	NDR	NDR
6	SPS-A-2	02/05/18	-	02/12/18	NDR	NDR	NDR
7 <sup>5</sup>	SPS-A-2	02/12/18	-	02/20/18	NDR	NDR	NDR
8 <sup>6</sup>	SPS-A-2	02/20/18	-	02/27/18	NDR	NDR	NDR
9 <sup>7</sup>	SPS-A-2	02/27/18	-	03/06/18	NDR	NDR	NDR
10	SPS-A-2	03/06/18	-	03/12/18	NDR	NDR	NDR
11 <sup>8</sup>	SPS-A-2	03/12/18	-	03/19/18			
12 <sup>9</sup>	SPS-A-2	03/19/18	-	03/26/18			
13 <sup>10</sup>	SPS-A-2	03/26/18	-	04/02/18			

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training/ 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2018 through March 31, 2018

### Pocahontas – PSP-A-1

#### Pocahontas State Park – Control

FIRST QUARTER REPORT 2018

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	PSP-A-1	01/01/18	-	01/08/18			
2 <sup>2</sup>	PSP-A-1	01/08/18	-	01/15/18			
3 <sup>3</sup>	PSP-A-1	01/15/18	-	01/22/18			
4 <sup>4</sup>	PSP-A-1	01/22/18	-	01/29/18	NDR	NDR	NDR
5	PSP-A-1	01/29/18	-	02/05/18	NDR	NDR	NDR
6	PSP-A-1	02/05/18	-	02/12/18	NDR	NDR	NDR
7 <sup>5</sup>	PSP-A-1	02/12/18	-	02/20/18	NDR	NDR	NDR
8 <sup>6</sup>	PSP-A-1	02/20/18	-	02/27/18	NDR	NDR	NDR
9 <sup>7</sup>	PSP-A-1	02/27/18	-	03/06/18	NDR	NDR	NDR
10	PSP-A-1	03/06/18	-	03/12/18	NDR	NDR	NDR
11 <sup>8</sup>	PSP-A-1	03/12/18	-	03/19/18			
12 <sup>9</sup>	PSP-A-1	03/19/18	-	03/26/18			
13 <sup>10</sup>	PSP-A-1	03/26/18	-	04/02/18			

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.



# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2018 through March 31, 2018

### North Anna Power Station at Route 700 – NAPS-A-1

Louisa County Route 700 / North Anna Power Station

FIRST QUARTER REPORT 2018

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	NAPS-A-1	01/01/18	-	01/08/18			
2 <sup>2</sup>	NAPS-A-1	01/08/18	-	01/15/18			
3 <sup>3</sup>	NAPS-A-1	01/15/18	-	01/22/18			
4 <sup>4</sup>	NAPS-A-1	01/22/18	-	01/29/18	NDR	NDR	NDR
5	NAPS-A-1	01/29/18	-	02/05/18	NDR	NDR	NDR
6	NAPS-A-1	02/05/18	-	02/12/18	NDR	NDR	NDR
7 <sup>5</sup>	NAPS-A-1	02/12/18	-	02/20/18	NDR	NDR	NDR
8 <sup>6</sup>	NAPS-A-1	02/20/18	-	02/27/18	NDR	NDR	NDR
9 <sup>7</sup>	NAPS-A-1	02/27/18	-	03/06/18	NDR	NDR	NDR
10	NAPS-A-1	03/06/18	-	03/12/18	NDR	NDR	NDR
11 <sup>8</sup>	NAPS-A-1	03/12/18	-	03/19/18			
12 <sup>9</sup>	NAPS-A-1	03/19/18	-	03/26/18			
13 <sup>10</sup>	NAPS-A-1	03/26/18	-	04/02/18			

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 - 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2018 through March 31, 2018

### Bumpass Fire Station – NAPS-A-2

Louisa County / Bumpass Volunteer Fire Station

FIRST QUARTER REPORT 2018

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	NAPS-A-2	01/01/18	-	01/08/18			
2 <sup>2</sup>	NAPS-A-2	01/08/18	-	01/15/18			
3 <sup>3</sup>	NAPS-A-2	01/15/18	-	01/22/18			
4 <sup>4</sup>	NAPS-A-2	01/22/18	-	01/29/18	NDR	NDR	NDR
5	NAPS-A-2	01/29/18	-	02/05/18	NDR	NDR	NDR
6	NAPS-A-2	02/05/18	-	02/12/18	NDR	NDR	NDR
7 <sup>5</sup>	NAPS-A-2	02/12/18	-	02/20/18	NDR	NDR	NDR
8 <sup>6</sup>	NAPS-A-2	02/20/18	-	02/27/18	NDR	NDR	NDR
9 <sup>7</sup>	NAPS-A-2	02/27/18	-	03/06/18			
10 <sup>8</sup>	NAPS-A-2	03/06/18	-	03/12/18	NDR	NDR	NDR
11 <sup>9</sup>	NAPS-A-2	03/12/18	-	03/19/18			
12 <sup>10</sup>	NAPS-A-2	03/19/18	-	03/26/18			
13 <sup>11</sup>	NAPS-A-2	03/26/18	-	04/02/18			

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, and holiday 01/15, air sample collected 01/16 – 01/29.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to air sampler being unplugged at the receptacle, no data was collected. The air sampler was plugged back in and reset.

<sup>8</sup> Due to training on 03/05, sample was collected 03/06.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

<sup>11</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### Surry Power Station; Discharge Canal – SPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/01/18 <sup>1</sup>												
01/08/18 <sup>2</sup>												
01/15/18 <sup>3</sup>												
01/22/18 <sup>4</sup>												
01/29/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/05/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 122
02/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		751 +/- 123
02/12/18 <sup>D</sup>	<3.0	<5.0	<10.0	<5.0	<11.0	<9.0	<10.0	<5.0	<5.0	<28.0	64.7 +/- 10.7	
02/20/18 <sup>5</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		826 +/- 140
02/27/18 <sup>6</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		901 +/- 141
03/06/18 <sup>7</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		450 +/- 122
03/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		901 +/- 141
03/19/18 <sup>8</sup>												
03/26/18 <sup>9</sup>												

D=sample analyzed by DCLS

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, sample was not collected.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### James River; Robious Landing – SPS-W-2

#### Surry Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/01/18 <sup>1</sup>												
01/08/18 <sup>2</sup>												
01/15/18 <sup>3</sup>												
01/22/18 <sup>4</sup>												
01/29/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/05/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 100
02/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/12/18 <sup>D</sup>	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<6.0	<3.0	<3.0	<16.0	6.4 +/- 1.1	
02/20/18 <sup>5</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		601 +/- 122
02/27/18 <sup>6</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 71
03/06/18 <sup>7</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 100
03/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 71
03/19/18 <sup>8</sup>												
03/26/18 <sup>9</sup>												

D=sample analyzed by DCLS

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, sample was not collected.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### James River; Scotland Wharf – SPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/01/18 <sup>1</sup>												
01/08/18 <sup>2</sup>												
01/15/18 <sup>3</sup>												
01/22/18 <sup>4</sup>												
01/29/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/05/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 100
02/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/12/18 <sup>D</sup>	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<7.0	<3.0	<3.0	<18.0	13.3 +/- 1.1	
02/20/18 <sup>5</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		379 +/- 99
02/27/18 <sup>6</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/06/18 <sup>7</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/19/18 <sup>8</sup>												
03/26/18 <sup>9</sup>												

D=sample analyzed by DCLS

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, sample was not collected.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### North Anna Power Station; Discharge Canal – NAPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/01/18 <sup>1</sup>												
01/08/18 <sup>2</sup>												
01/15/18 <sup>3</sup>												
01/22/18 <sup>4</sup>												
01/29/18 <sup>5</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		6757 +/- 407
02/05/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		6682 +/- 412
02/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		7508 +/- 425
02/12/18 <sup>D</sup>	<5.0	<5.0	<11.0	<5.0	<11.0	<9.0	<13.0	<5.0	<5.0	<33.0	3.0 +/- 0.9	
02/20/18 <sup>6</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		6231 +/- 397
02/27/18 <sup>7</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		9835 +/- 484
03/06/18 <sup>8</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		6156 +/- 399
03/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		6006 +/- 387
03/19/18 <sup>9</sup>												
03/26/18 <sup>10</sup>												

D=sample analyzed by DCLS

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, sample was not collected.

<sup>5</sup> Due to 2 of 8 circulating water intake pumps not being in service, water sample had elevated tritium level and will continue to be elevated until the pumps are all back in service.

<sup>6</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>7</sup> Due to training, 02/26, sample was collected 02/27.

<sup>8</sup> Due to training on 03/05, sample was collected 03/06. Due to the release of a Boron Recovery Tank (BRT), for the upcoming refueling outage, and the reduction of intake pumps, Tritium level was elevated.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

<sup>10</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### North Anna River; Route 651 – NAPS-W-2

#### North Anna Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/01/18 <sup>1</sup>												
01/08/18 <sup>2</sup>												
01/15/18 <sup>3</sup>												
01/22/18 <sup>4</sup>												
01/29/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/05/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/12/18 <sup>D</sup>	<5.0	<5.0	<11.0	<5.0	<11.0	<10.0	<17.0	<5.0	<5.0	<39.0	8.4 +/- 1.2	
02/20/18 <sup>5</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 99
02/27/18 <sup>6</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 300
03/06/18 <sup>7</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 100
03/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 71
03/19/18 <sup>8</sup>												
03/26/18 <sup>9</sup>												

D=sample analyzed by DCLS

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, sample was not collected.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.

# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### North Anna River; Route 522 – NAPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/01/18 <sup>1</sup>												
01/08/18 <sup>2</sup>												
01/15/18 <sup>3</sup>												
01/22/18 <sup>4</sup>												
01/29/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 100
02/05/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		1126 +/- 158
02/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/12/18 <sup>D</sup>	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<9.0	<3.0	<3.0	<21.0	9.3 +/- 1.2	
02/20/18 <sup>5</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 99
02/27/18 <sup>6</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		525 +/- 100
03/06/18 <sup>7</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 100
03/12/18	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 71
03/19/18 <sup>8</sup>												
03/26/18 <sup>9</sup>												

D=sample analyzed by DCLS

<sup>1</sup> Due to the MICL being serviced and holiday, sample was not collected.

<sup>2</sup> Due to the MICL being serviced, sample was not collected.

<sup>3</sup> Due to the MICL being serviced, sample was not collected.

<sup>4</sup> Due to the MICL being serviced, sample was not collected.

<sup>5</sup> Due to holiday, 02/19, sample was collected 02/20.

<sup>6</sup> Due to training, 02/26, sample was collected 02/27.

<sup>7</sup> Due to training on 03/05, sample was collected 03/06.

<sup>8</sup> Due to the MICL being serviced, sample was not collected.

<sup>9</sup> Due to the MICL being serviced, sample was not collected.



# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### Newport News Shipbuilding

James River – Pier 1  
NNSB-W-1

FIRST QUARTER REPORT 2018

Qtr	Date collected	Gamma Activity – pCi/Liter					Gross Beta pCi/Liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st	03/29/18 <sup>1</sup>						

James River – Shipway #11  
NNSB-W-2

Qtr	Date collected	Gamma Activity – pCi/Liter					Gross Beta pCi/Liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st	03/29/18 <sup>2</sup>						

<sup>1</sup> Water sample was rejected by Division of Consolidated Lab Services.

<sup>2</sup> Water sample was rejected by Division of Consolidated Lab Services.

# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### Norfolk Naval Shipyard

Elizabeth River – Dry Dock #4  
NNSY-W-1

FIRST QUARTER REPORT 2018

Qtr	Date collected	Gamma Activity – pCi/Liter					
	03/29/18 <sup>1</sup>						
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st							
Gross Beta							
Gross Alpha							

Elizabeth River – Dry Dock #8  
Norfolk Naval Shipyard NNSY-W-2

Qtr	Date collected	Gamma Activity – pCi/Liter					
	03/29/18 <sup>2</sup>						
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st							
Gross Beta							
Gross Alpha							

Elizabeth River – Wet Slip #1  
Norfolk Naval Shipyard NNSY-W-3

Qtr	Date collected	Gamma Activity – pCi/Liter					
	03/29/18 <sup>3</sup>						
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st							
Gross Beta							
Gross Alpha							

<sup>1</sup> Water sample was rejected by Division of Consolidated Lab Services.

<sup>2</sup> Water sample was rejected by Division of Consolidated Lab Services.

<sup>3</sup> Water sample was rejected by Division of Consolidated Lab Services.

# Virginia Department of Health

## FISH

January 1, 2018 through March 31, 2018

FIRST QUARTER REPORT 2018

Location Type of fish	Date Collected	Isotope	pCi/gram
North Anna 2 <sup>nd</sup> Cooling Lagoon	N/A	Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
		I-131	
		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110	
NAPS- F-1 (Fish)	N/A	Zn-65	
		Nb-95	
Surry Discharge Canal	N/A	Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
		I-131	
		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110	
SPS-F-1 (Fish)	N/A	Zn-65	
		Nb-95	

**N/A**-Samples not collected this quarter.

Note: Fish samples collected during the 2<sup>nd</sup> and 4<sup>th</sup> quarter.

# Virginia Department of Health

## SHELLFISH

January 1, 2018 through March 31, 2018

### FIRST QUARTER REPORT 2018

Location Type of Fish	Date Collected	Isotope	pCi/gram
Surry Power Station	N/A	Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
SPS-R-1		I-131	
(Clams and Oysters)		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110M	
		Zn-65	
		Nb-95	

**N/A**-Samples not collected this quarter.

Note: Shellfish are collected annually when available.

# Virginia Department of Health

## SILT

January 1, 2018 through March 31, 2018

### Surry Power Station Discharge Canal, James River – SPS-S-1

FIRST QUARTER REPORT 2018

Quarter	Date Collected	Gamma Activity pCi/gram			
		Cs-134	Cs-137	Co-58	Co-60
1st	02/05/18	<0.01	<0.01	<0.01	<0.01

### North Anna Power Waste Treatment NAPS-S-1

FIRST QUARTER REPORT 2018

Quarter	Date Collected	Gamma Activity pCi/gram			
		Cs-134	Cs-137	Co-58	Co-60
1st	N/A				

N/A: Sample was not collected this quarter.

Note: Silt samples are collected bi-annually.

# Virginia Department of Health

## SILT

January 1, 2018 through March 31, 2018

### Newport News Shipbuilding

FIRST QUARTER REPORT 2018

Location	Date Collected					Gross Beta pCi/gram
James River – Pier 1  NNSB-S-1	03/29/18 <sup>1</sup>	Cs-134	Cs-137	Co-58	Co-60	Sample compromised ~ unable to analyze

Location	Date Collected					Gross Beta pCi/gram
James River – Shipway 11  NNSB-S-2	03/29/18 <sup>2</sup>	Cs-134	Cs-137	Co-58	Co-60	

<sup>1</sup> Results for the silt sample has not been received from the Division of Consolidated Laboratory Services.

<sup>2</sup> Results for the silt sample has not been received from the Division of Consolidated Laboratory Services.

# Virginia Department of Health

## SILT

January 1, 2018 through March 31, 2018

### Norfolk Naval Shipyard

#### FIRST QUARTER REPORT 2018

Location	Date Collected	Gamma Activity pCi/gram			Gross Beta pCi/gram	Gross Alpha pCi/gram
Elizabeth River Drydock #4	03/29/18 <sup>1</sup>					
NNSY-S-1	Cs134	Cs137	Co58	Co60		
1st Quarter						
Elizabeth River Drydock #8	03/29/18 <sup>2</sup>					
NNSY-S-2	Cs134	Cs137	Co58	Co60		
1st Quarter						
Elizabeth River Wet Slip #1	03/29/18 <sup>3</sup>					
NNSY-S-3	Cs134	Cs137	Co58	Co60		
1st Quarter						

<sup>1</sup> Results for the silt sample have not been received from the Division of Consolidated Laboratory Services.

<sup>2</sup> Results for the silt sample have not been received from the Division of Consolidated Laboratory Services.

<sup>3</sup> Results for the silt sample have not been received from the Division of Consolidated Laboratory Services.

# Virginia Department of Health

## Milk

January 1, 2018 through March 31, 2018

### FIRST QUARTER REPORT 2018

#### Surry County - Epps Dairy SPS-M-1

1st Quarter Date:01/09/18

Isotope	Results - pCi/Liter
Ba-140	< 12.0
Cs-134	< 3.0
Cs-137	< 4.0
K-40*	1.6 +/- 0.1 g/L
I-131	< 3.0
Sr-89	< 4.0
Sr-90	< 0.5

\*K-40 data is reported in units of grams/liter.

#### Louisa County Lake Side Dairy NAPS-M-1

1st Quarter Date:

Lake Side Dairy is no longer in operation. There are no longer any dairy farms located within the 10 mile EPZ for milk sampling.



# Virginia Department of Health

## AMBIENT GAMMA EXPOSURE

January 1, 2018 through March 31, 2018

### FIRST QUARTER REPORT

Location	Station	Net Exposure Rate mR/Std Qtr +/- 2S.D.		
Jamestown – Historical site	SPS-D-1	30.60	+/-	11.06
Williamsburg – Airport	SPS-D-2	22.44	+/-	9.47
Williamsburg – Busch Gardens	SPS-D-3	31.68	+/-	11.26
Newport News - Lee Hall	SPS-D-4	33.29	+/-	11.54
Naval Weapons Station – 1	SPS-D-5	23.15	+/-	9.62
Newport News – Fort Eustis	SPS-D-6	28.14	+/-	10.61
Surry – Route 628	SPS-D-7	27.34	+/-	10.46
Surry – Lawnes Creek	SPS-D-8	30.11	+/-	10.97
Surry Power Station	SPS-D-9	26.66	+/-	10.33
Surry – Hog Point	SPS-D-10	25.54	+/-	9.91
Surry – Bacon’s Castle	SPS-D-11	23.28	+/-	9.65
Surry – Alliance	SPS-D-12	27.24	+/-	10.49
Surry – Scotland Wharf	SPS-D-13	25.21	+/-	10.04
Surry – Lebanon Baptist Church	SPS-D-14	24.14	+/-	9.83
Louisa County - Mineral	NAPS-D-1	26.66	+/-	10.33
Louisa County – Wares Crossroads	NAPS-D-2	27.11	+/-	10.41
Louisa County – Good Hope Church	NAPS-D-3	31.03	+/-	11.14
Spotsylvania – Route 713	NAPS-D-4	27.38	+/-	10.47
Spotsylvania Route 614	NAPS-D-5	26.44	+/-	10.28
Spotsylvania – Levy	NAPS-D-6	31.14	+/-	11.16
Louisa County – Bumpass Fire Dept.	NAPS-D-7	38.93	+/-	10.76
Louisa County – Fred Hall	NAPS-D-8	24.14	+/-	9.83
Louisa County – Aspen Hill	NAPS-D-9	33.69	+/-	11.61
Louisa County – Route 685	NAPS-D-10	27.11	+/-	10.41
Louisa County – Route 700	NAPS-D-11	33.51	+/-	11.58
North Anna Power Station	NAPS-D-12	30.80	+/-	11.10
Pocahontas State Park (Control)	PSP-D-1	42.70	+/-	13.07
Radiological Health	ORH-D-1	15.05	+/-	7.76
Radiological Health	ORH-D-2	14.38	+/-	7.583

# Virginia Department of Health

## VEGETATION

January 1, 2018 through March 31, 2018

### FIRST QUARTER REPORT 2018

Location	Date collected	Type	Isotope	Results pCi/gram
<b>Surry County</b>	<b>N/A</b>			
<b>Private garden</b>		Mixed Greens	I-131	
<b>SPS-V-1</b>			Cs-134	
			Cs-137	
<b>Louisa County</b>	<b>N/A</b>			
<b>Private Garden</b>		Mixed Greens	I-131	
<b>NAPS-V-1</b>			Cs-134	
			Cs-137	

**N/A:** Sample not collected this quarter.

Note: Vegetation is collected bi-annually when available.

# COMMONWEALTH OF VIRGINIA

## DEPARTMENT OF HEALTH

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### OFFICE OF RADIOLOGICAL HEALTH

109 Governor Street, 7<sup>th</sup> Floor, Richmond, Virginia 23218-2448

Office (804) 864-8150

Fax (804) 864-8175

# BABCOCK & WILCOX

# Virginia Department of Health

## AIR PARTICULATE COMPOSITE SAMPLES

January 1, 2018 through March 31, 2018

Eastern Site Boundary – Ball field

### FIRST QUARTER REPORT 2018

	Start	Date	Stop	Gross Alpha Activity pCi/meter <sup>3</sup>		
<b>B&amp;W-A-1</b>						
<b>1st</b>	01/03/2018	-	01/09/2018	0.001	+/-	0.0005

## SOIL

January 1, 2018 through March 31, 2018

Eastern Site Boundary / Six Mile Bridge Shoreline

### FIRST QUARTER REPORT 2018

Location	Date	Distance & Direction	Type	Alpha Activity ppm
<b>Eastern Site Boundary Ball field B&amp;W-S-1</b>	<b>N/A</b>	Site Boundary	Soil	+/-
<b>James River Shoreline Near Six Mile Bridge “control” B&amp;W-S-2</b>	<b>N/A</b>	1.5 miles SW	Soil	+/-

**N/A:** Sample not collected this quarter.

Note: Uranium separation followed by alpha counting.

# Virginia Department of Health

## SURFACE WATER

January 1, 2018 through March 31, 2018

### Eastern Site Boundary Shoreline / Six Mile Bridge Shoreline

#### FIRST QUARTER REPORT 2018

Location	Date	Distance &Direction	Alpha Activity ppb
<b>James River Shoreline Near Ball field at eastern site boundary B&amp;W-W-1</b>	<b>N/A</b>	Approx. 3 miles downstream	+/-
<b>James River Shoreline Near Six Mile Bridge "control" B&amp;W-W-2</b>	<b>N/A</b>	Approx 1.5 Miles upstream	+/-

**N/A:** Sample not collected this quarter.

## VEGETATION

January 1, 2018 through March 31, 2018

### Eastern Site Boundary / James River Shoreline

#### FIRST QUARTER REPORT 2018

Location	Date	Distance &Direction	Alpha Activity ppm
<b>Eastern site boundary Ball field B&amp;W-V-1</b>	<b>N/A</b>	Approx. 3 miles downstream	+/-
<b>James River Shoreline off Rt. 460 "control" B&amp;W-V-2</b>	<b>N/A</b>	Approx 4.5 Miles SW	+/-

**N/A:** Sample not collected this quarter.

Note: Uranium separation followed by alpha counting.

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF HEALTH

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OFFICE OF RADIOLOGICAL HEALTH  
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# EMERGENCY PREPAREDNESS

# EMERGENCY PREPAREDNESS

The Office of Radiological Health (ORH) located within the Virginia Department of Health (VDH) is one of the lead response agencies for emergencies involving the potential or actual release of radioactive materials. Overall, state level emergency response is described in the Commonwealth of Virginia Radiological Emergency Response Plan (COVERERP), which is developed and maintained by the Virginia Department of Emergency Management (VDEM). In addition to generic guidelines for responding to any major radiological emergency, the response procedures contain segments addressing response to several specific types of radiological incidents. This includes sections which provide information needed for response to Licensee and Transportation accidents. Other sections contain background information and response guidance for accidents at fixed nuclear facilities. Plans are also being developed to respond to possible radiological terrorist attacks, which may include detonation of a radiological dispersion device (RDD aka “dirty bomb”), an improvised nuclear device (IND), or a military grade nuclear warhead.

When responding to any radiological emergency, the primary tasks of the Office of Radiological Health are to locate, identify, and predict the impact of any radioactive materials released to the environment. Based on the predicted or known impact, ORH then recommends appropriate measures to protect the public. ORH would also be tasked with helping to supervise the cleanup of radiological contamination and ensuring the proper disposal of radioactive waste. An ORH duty officer maintains 24-hour coverage to provide initial assessment/assistance for local responders and may also initiate the mobilization/deployment of other trained staff to respond to a radiological emergency when needed.

Under the provisions of current Federal Emergency Management Agency (FEMA) regulations, ORH conducts or participates in periodic drills that are designed to provide team training and to test emergency plans and procedures. The scope of these drills ranges from receiving and acknowledging simulated emergency communications to full-scale team deployment.

Federal regulations for commercial nuclear power generating facilities stipulate that a full-scale exercise involving appropriate local government participation and testing all significant response elements must be conducted and evaluated every other year. Because there are two such facilities, Surry and North Anna Nuclear Power Stations, Commonwealth of Virginia agencies will perform exercise activities on a yearly basis, alternating between the sites each year.